Washington State
Department of Transportation

WSDOT-Managed Airports:
System Evaluation and Strategic Plan

Policies and Performance Objectives
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STATE-MANAGED AIRPORTS: WORKING PAPER #2

prepared by:

Wilbur Smith Associates
6600 Clough Pike
Cincinnati, OH 45244
513.233.3700
www.wilbursmith.com

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EXECUTIVE SUMMARY

Working Paper 2 represents the second of three submissions to the Washington State Department of Transportation's (WSDOT) Aviation Division for the overall state-managed airport system analysis being conducted in association with the Washington State Long-Term Air Transportation Study (LATS). In terms of the overall study effort, Working Paper 1, submitted previously, established the value of the existing system, while Working Paper 2 presents policies and performance objectives designed to maintain and enhance the value of that system. Specifically, the second working paper establishes policy recommendations for the operation and maintenance of the airport system, and introduces airport facility and activity performance objectives that will serve as the basis of long-term development goals for the existing system airports. The final submission of this study will be Working Paper 3, which will present specific recommendations for the development of individual airports, as well as best management practices for the operation of those airports.

As reflected in Working Paper 1, the overall state-managed airport system assessment has been based on the State of Washington's current Aviation Policy, which identifies four primary points of interest with regard to aviation: Preservation, Safety, Capacity, and Environmental Protection. While this basis serves as an effective tool in establishing the current value of the system, it was also noted that WSDOT Aviation required a greater degree of guidance at a policy level for decision making with regard to the long term operation and development of the state-managed airport system. Therefore, in close coordination with WSDOT Aviation personnel, four additional policies were identified within Working Paper 2 exclusively for the state-managed airport system.

> **Policy 1 -** The primary function of the WSDOT Aviation-Managed Airport System is to fulfill the stated purposes of the State Aviation Policy.
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> **Policy 2 -** WSDOT Aviation ***will operate and maintain*** the airports within the state-managed system only to the level to sustain the fundamental benefits for the State of Washington as prescribed by the State Aviation Policy.
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> **Policy 3 -** WSDOT Aviation will consider the ***acquisition or disposal*** of airports only within the context of fulfilling the stated purposes of the State Aviation Policy.
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> **Policy 4 -** WSDOT Aviation will not endorse the establishment of independent operators conducting aeronautical activities on land adjacent to, but not a part of, any properties associated with the state-managed airport system.

It is intended that these policies will reinforce WSDOT Aviation's mandate to operate and maintain the state-managed airport system for the expressed benefit of the State of Washington through meeting the goals of the State Aviation Policy. Additionally, these policies will provide a framework for responding to the operational and maintenance questions that arise daily within the airport system. It should also be noted that just as the State Aviation Policy is not itself static and continues to evolve, these four policies are subject to change with that state policy.

Working Paper 2 also provides the direct link between the State Aviation Policy and the airports themselves through the creation of specific facility performance objectives. These objectives, established from both a system stratification perspective and from an airport activity perspective, provide a listing of the recommended facilities for each of the state managed airports to better fulfill the goals of the state policy. The intent of this approach was to establish performance objectives that looked both at the needs of the overall system, as well as at the particular needs of each airport so as to enhance their ability to accommodate activities and ultimately benefit the state.

Specifically, 12 facility objectives were identified for each of the four airport stratification levels described in Working Paper 1. Similar to LATS, airports within higher stratification levels tended to have a higher number or degree of objectives. These objectives encompassed all of an airport's primary facility components, including performance measures for the runway, taxiways, landing criteria (or approach categories), navigational aids (NAVAIDS), and appropriate goals for meeting specific airport design criteria.

Additionally, performance objectives were identified based on the type of activities that a given airport accommodated. As shown in Working Paper 1, the state-managed airports contribute to the fulfillment of the State Aviation Policy goals by providing benefits to the state that might not otherwise be afforded if not for these state-managed airports. Within that working paper, the benefits or value to the state were identified as being within the following five main areas:

- Support of forest fire fighting activity
- Transportation access to remote communities
- Support of emergency medical operations
- Transportation access to recreational areas
- Flight safety enhancement

Working Paper 2 identified the unique performance objectives for each of these five activities.

The final submission of this state-managed airport system assessment, Working Paper 3, will present a recommended development plan for each airport. These plans will be created by marrying the 12 facility objectives identified by a given airport's system stratification level, with the performance objectives that reflect the types of activities that the airport accommodates. Additionally, each plan will be refined through coordination with WSDOT Aviation personnel to ensure that they are reasonable and practicable.

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I. INTRODUCTION

The Washington State Department of Transportation's (WSDOT) Aviation Division has requested that Wilbur Smith Associates (WSA) conduct an analysis of its 17 state-managed airports. The previous working paper (Working Paper #1) encompassed a system inventory overview and an independent system assessment that was designed to gauge how each of the state-managed airports currently serve Washington's pilots, its residents, and government agencies. That effort assessed how each state-managed airport operated in relation to the state's 1998 Aviation Policy which identified the four points of interest with regard to aviation, including: Preservation, Safety, Capacity, and Environmental Protection. Working Paper 1 concluded by segmenting the state-managed airport system into four value categories that reflected the level to which each airport was contributing to meeting the goals of the state's aviation policy.

Working Paper 2, representing the second submission to WSDOT by WSA for the overall state-managed airport system analysis, builds upon that previous effort by establishing policy recommendations specifically for the operation and maintenance of the state-managed airport system. Additionally, this paper introduces airport and activity performance objectives to serve as the basis of long-term development goals for the existing system airports. These development goals ultimately will provide the roadmap for each airport to better fulfill their respective roles for the State of Washington.

Working Paper #2 Purpose and Process

The purpose of Working Paper #2 is to provide an appropriate foundation for the establishment of a recommended development plan for each airport, as well as for the system as a whole. As suggested in the previous working paper, it is important for WSDOT Aviation to utilize state-level policies to help guide decision-making with regard to the state-managed airports so as to ensure that any development contributes to the long-term goals of those policies. To date, no policies have been developed specifically for the maintenance, operation and development of the WSDOT-managed airport system. As such, this working paper will introduce several policies specific to the state-managed system that will serve as the foundation for future decision making with respect to these airports.

From that basis in policy, performance measures and objectives can be developed that will help ensure that system airports fulfill the goals of those policies. For the WSDOT-managed airport system, performance measures and objectives were developed from both an airport level (or stratification) perspective, and from an airport

operations perspective. By combining the performance objectives established for a given airport's level, as determined in the previous working paper, with the performance objectives for the types of activities that the airport is supposed to accommodate, an overall development plan for that airport can be established. The following sections of this working paper detail that process of establishing the long-term development program for the state-managed airport system.

II. POLICY FRAMEWORK

The State of Washington defines "policy" to be "a principle or course of action chosen to guide decision making," and the current State Aviation Policy reflects that definition. As stated previously, WSDOT Aviation has actively worked to meet the four points of interest of the current policy:

- **Preservation -** *It is the state's interest that aviation facilities and services be preserved that provide access for all regions of the state to the nation's air transportation system, provide for emergency management, and support local economies.*
- **Safety -** *It is the state's interest that transportation by air be safe.*
- **Capacity -** *It is the state's interest that there be sufficient airport capacity to respond to growth in demand to ensure access across the state, the nation and the world.*
- **Environmental Protection -** *It is the state's interest that negative environmental impacts of airports on people and the natural environment be mitigated.*

The Washington State Legislature recently revised various existing state transportation system goals, objectives and responsibilities and the process by which these elements are measured and reported on (RCW 47.01.012). As such, these updated goals and objectives were incorporated into this planning study through modifying the State Aviation Policy's points of interest to be the following:

- **Preservation** - *To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services;*
- **Safety** - *To provide for and improve the safety and security of transportation customers and the transportation system;*
- **Mobility** - *To improve the predictable movement of goods and people throughout Washington State;*
- **Environment** - *To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment; and*

- **Stewardship -** *To continuously improve the quality, effectiveness and efficiency of the transportation system.*

While these policies are appropriate and effective for providing high-level guidance in relation to the overall state multi-modal transportation system and aviation system, it is necessarily broad in its context in order to encapsulate the diversity of the entire state multi-modal transportation system and aviation system. As such, it does not provide significant detail for the operation and maintenance of specific components of that system, such as the commercial service airports, the general aviation airports, or the state-managed airports.

For the state-managed airport component, it has become apparent that some policy structure needs to be established in order to provide a tool to serve as the basis for decision making with regard to the airport system. Therefore, policies and related management principles have been established for use by WSDOT Aviation in relation to the state-managed airport system. The policies and principles included in this report will be presented as recommendations to the WSDOT Aviation Advisory Committee and Governor's Aviation Planning Council.

Policy 1 - The primary function of the WSDOT Aviation-Managed Airport System is to fulfill the stated purposes of the state's transportation policy goals as defined by the Washington State Legislature.

This policy acknowledges that the state-managed airport system exists to benefit the State of Washington through meeting the stated purposes of the State Aviation Policy of preservation, safety, capacity, and environmental protection. Manners for achieving these benefits for the State of Washington include, among others, the following:

- Support forest fighting activities
- Provide transportation access to remote communities
- Provide access for emergency medical operations
- Provide access to recreational areas
- Enhance the overall level of safety for the state aviation system

Policy 2 - WSDOT Aviation ***will operate and maintain*** the airports within the state-managed system only to the level to sustain the fundamental benefits for the State of Washington as prescribed by the State Aviation Policy.

The majority of the airports within the state-managed system were designed and constructed primarily to provide some fundamental service(s) rooted in public safety for the State of Washington; be it to benefit the flying public by building emergency landing areas, or to benefit communities by providing access to remote areas. The system was not established to compete for aircraft operations with other airports owned by other public or private entities within the state or to function solely as economic generators. Therefore, it should not be the intent of WSDOT Aviation to operate, maintain, or develop the state-managed airports beyond that which is required for them to continue to fulfill their basic purposes.

However, while WSDOT Aviation has no mandate to maintain and operate the state-managed airports to meet the demands of commercial and/or general aviation operations, this does not preclude non-WSDOT Aviation public and private entities from developing and operating the airports beyond that which the Aviation Division currently does as required by the State Aviation Policy. For example, a municipality which abuts or hosts a state-managed airport may want that airport to have facilities to accommodate local general aviation activity as a means to generate economic activity. If this type of development exceeds the requirements of the fundamental purposes for which the airport was designed and is maintained, WSDOT Aviation would have no obligation to sponsor such development. Yet, if that municipality is willing to undertake the responsibility for the construction and

the long-term maintenance of that development, WSDOT Aviation could consider those proposals.

Such partnerships also have the potential to create additional revenue streams for WSDOT Aviation for the operation and maintenance of the overall state-managed system. Airports designed and operated for the primary purposes of providing essential public safety services commonly generate little, if any, revenue based on those services. As such, it is important for the long-term viability of the system that WSDOT Aviation make efforts to ensure that the system be as financially self-sufficient as possible. It is possible that realizing partnership opportunities at just one or two airports has the potential of sustaining the long-term health of the entire state-managed system.

However, it should be made clear that a principal concern for WSDOT Aviation in considering such proposals should be the long-term maintenance of any development that exceeds that the requirements of that airport's basic purpose. The Aviation Division must protect itself from a situation where a development sponsor is not able to meet its long-term obligations and commitments, which ultimately could require WSDOT Aviation to assume responsibility for the development. As such, it is imperative that WSDOT Aviation carefully consider the possible implications of any such proposal, and should limit any development to a level that it deems to be reasonable. For instance, a development proposal that includes any pavement (i.e. runway, taxiway, apron, etc.) beyond what the airport currently requires should be carefully considered since the cost of its long-term maintenance will be significantly higher than that of a non-paved surface. If the development sponsor were to forgo his maintenance responsibilities, WSDOT Aviation would likely have to assume those responsibilities. In this case, it would be reasonable for the Aviation Division to limit the development proposal to non-paved surfaces from the start.

In such cases where it is not prohibited by existing leasing and/or ownership restrictions, WSDOT Aviation would consider itself to be open to partnering opportunities with such entities given the following conditions:

1. WSDOT Aviation would not be required to maintain and operate the airports beyond the level required to sustain the fundamental benefit to the state;
2. WSDOT Aviation would prefer that it partner with local governmental sponsoring entities (i.e. municipalities, counties, etc.) who can commit to the long-term maintenance and support of any such development.
3. In the case of private development, a local governmental sponsoring entity (i.e. municipalities, counties, etc.) must be identified and included in

partnership to ensure long-term commitment and support for any development or improvement to the airport;

4. The partnering entities would meet minimum leasing and operating standards as dictated by WSDOT Aviation, and would bear sole responsibility for the operational and maintenance requirements dictated by the enhanced level of operations.

Policy 3 - WSDOT Aviation will consider the ***acquisition or disposal*** of airports only within the context of fulfilling the stated purposes of the State Aviation Policy.

WSDOT Aviation is occasionally presented with opportunities to acquire ownership or management responsibilities of a public or private airport. Oftentimes, these airports are financially distressed in that maintenance and operational costs outweigh their revenue producing capabilities. In such instances, the state is often viewed as a possible sponsoring entity capable of assuming the responsibilities of operating these airports so as to protect them from being closed.

However, it must be clearly understood that the role of WSDOT Aviation is not to act as an airport sponsor or operator. As stated in RCW 47.68.070 of the General Powers, WSDOT Aviation is *empowered to encourage, foster, and assist in the development of aeronautics in the state and to encourage the establishment of airports and air navigation facilities.* WSDOT Aviation should not and cannot be held to the standard of assuring that all financially distressed airports within the state remain open; there must be some overriding benefit to the state that will be realized through the acquisition of a given airport.

This "overriding benefit to the state" is reflected in WSDOT Aviation's sponsorship, maintenance and operation of the state-managed airport system. As evidenced in the previous working paper, these airports provide little, if any, financial income to the state, and in fact, most operate at a loss. If judged strictly on the basis of profitability, very few could be viewed as being financially viable airports. However, what they do provide the state is the benefit of fulfilling very specific, defined roles that might otherwise not be met if not for state sponsorship. Therefore, the potential acquisition and disposal of airports should be viewed by WSDOT Aviation strictly on the basis of whether a given airport fulfills one or more of those specific roles, thereby contributing to the stated purposes of the State Aviation Policy. Those airports that do not contribute to the goals of the policy should be viewed as being beyond the mandate of WSDOT Aviation.

Below are general guidelines that have been identified which WSDOT Aviation should consider as part of the airport acquisition or disposal decision-making process. It is important to recognize that the ongoing Washington State Long-Term Air Transportation Study (LATS) effort must play a critical role in making any

determination for acquiring or disposing of airports. As part of its scope, LATS will identify redundancies and deficiencies in the overall state aviation system over a wide range of facilities and services. Any gaps or overlaps identified by LATS will be important considerations in the state-managed airport system decision-making process. In general, it should be understood that airport acquisition and disposal decisions related to the state-managed airport system should be based solely on LATS recommendations, unless overriding considerations can be shown otherwise.

Airport Disposal

1. Airports within the state-managed airport system that do not provide any benefit to the state in terms of the value activities described previously should be considered for decommissioning and reuse/disposal.
2. Factors that may influence the decision to decommission an airport could include the following:
    - A benefit-cost analysis may quantify the value of an airport (or lack thereof) in relation to the current and projected operational/maintenance costs.
    - Community support and involvement is vital to sustaining an airport. Community indifference or antipathy for an airport could be important indicators of a given airport's value.
    - LATS must be examined when considering the long-term future of a state airport, particularly in the case of an airport that provides an adequate level of access to communities.
    - Environmental factors, both positive and negative, that could result from the decommissioning of an airport should be carefully considered and quantified.

Airport Acquisition

1. For any airport to be considered for inclusion in the state-managed airport system, it must provide some value to the state that is commensurate to the other existing airports in the system, and/or has been identified by LATS as being an important resource to the State of Washington.
2. Any airport included in the state-managed system should be maintained only to the level appropriate to provide the value activity, regardless of existing general aviation activity. WSDOT Aviation should be open to partnering opportunities with other private/public entities who might wish to operate the airport to a level to meet specific commercial/general aviation demands. However, as stated in Policy 2, WSDOT Aviation should not be obliged to exceed its commitment to beyond that of the basic investment needed to maintain the value activity for the state.
3. Airports could be considered for inclusion in the state-managed system even if they provide no immediate value to the state or are classified as

unnecessary/redundant by LATS. In such cases, WSDOT Aviation would need to view the acquisition of a given airport as the preservation of an aviation resource that it considers to be critical to the current or future state airport system. Given financial and operational limitations, it is possible that such an airport be "land-banked" and be closed in the short term until such time that demand requirements and/or aviation system capacity constraints would require its reopening. It should be noted that in such a circumstance some potentially significant environmental efforts would need to be undertaken to reopen a facility.

Policy 4 - WSDOT Aviation will not endorse the establishment of independent operators conducting aeronautical activities on land adjacent to, but not a part of, any properties associated with the state-managed airport system.

Airport owners and operators, including WSDOT Aviation, are often presented with requests by operators independent of the airport to issue permits and/or leases granting access to the airport from abutting sites. This type of arrangement is commonly known as a "through-the-fence" operation, and typically includes businesses or individuals that require access to the airport infrastructure from outside airport property, or which utilize airport property to conduct a business but do not rent business space at the airport. Common types of through-the-fence agreements include aircraft hangars, aircraft maintenance, general aviation fixed base operator services (FBO), miscellaneous flight services (i.e. charter, rental, skydiving, etc.), as well as airpark residential housing.

It is important to note that there are no state or federal obligations for an airport to provide such access to adjacent properties. While the Federal Aviation Administration (FAA) does not prohibit through-the-fence operations, they do strongly discourage it.

There are several concerns for an airport owner or operator related to the establishment of through-the-fence operations at an airport. First, the lease of airport property is one of only a few revenue streams that are typically available to an airport for the operation, maintenance and improvement that airport. Individuals and businesses that are granted access to the airport from off-airport property do not typically contribute to the airport fund at a level commensurate to on-airport operators. This could be damaging to the airport not only through the loss of that operational revenue, but also through the potential granting of an unfair competitive advantage to the off-airport operator. Specifically, a through-the-fence operator may not have to bear as high a leasing cost as that of an on-airport operator, effectively reducing the through-the-fence operator's overhead costs. Such a competitive advantage may reduce the ability of on-airport operators to

compete for services, thereby hampering their financial viability, and diminishing the economic vitality of the airport.

The second principal concern related to through-the-fence operations is that of access and security. Such operations invariable lead to a greater risk of runway incursions and uncontrolled vehicle access, as well as a generally reduction in airport security by introducing additional points of airfield entry.

While it is this policy to discourage any through-the-fence operation at any of the state-managed airports, if nevertheless such an operation were to be introduced, WSDOT Aviation should consider the following:

1. The development of a through-the-fence operation will require that WSDOT Aviation contend with the legal, insurance, safety, and management implications of such access. Additionally, allowing access to one through-the-fence operator may invite future or previously denied operators the opportunity for the same privilege.
2. Services provided by the through-the-fence operator should include some type of compensation, similar to those paid by other business tenants at the airport. Frequently, a yearly fee, percentage of the gross profits or an access fee may be satisfactory ways of allowing this type of operation. It is important that the airport operator ensure that a through-the-fence operator be subjected to conditions similar to those applicable to the businesses at the airport in order to avoid complications and possible violations of the grant assurances.
3. Access leasing arrangements should grant WSDOT Aviation control over the types of development and operations conducted by the through-the-fence operator, including meeting the same minimum standards required of on-airport operators. These conditions may be in the form of a formal "Through-the-Fence Operations" operating plan that should be established and accepted by WSDOT Aviation.
4. All development must be compatible with the airport environment and the current Airport Layout Plan (ALP).

The previous four policies have been specifically constructed for WSDOT Aviation to provide a general framework for decision-making as related to the state-managed airports. Essentially, these policies simply reinforce WSDOT Aviation's mandate to operate and maintain the state-managed airport system for the expressed benefit of the State of Washington through meeting the goals of the State Aviation Policy. However, it should also be noted that the State Aviation Policy is not static and continues to evolve itself. As such, these four policies, as well as their interpretations and applications, are subject to change with that state policy.

III. PERFORMANCE MEASURES AND OBJECTIVES

Performance measures and objectives are utilized within system planning to establish a means by which to judge how an aviation system is currently performing and where that system needs to improve. These measures and objectives oftentimes are based on FAA airport design criteria, facility criteria, operational goals, and specific sponsor targets, and are typically applied to airports that fulfill specific roles within a given aviation system.

What is unique about the approach taken within Working Paper 2 is that while traditional measures and objectives have been established based on a system stratification, additional measures and objectives have been identified to support those airport activities identified previously that provide benefit to the state. Those benefits, which include supporting firefighting activities, etc., have their own particular facility needs, and these needs have been identified in the form of performance objectives. Therefore, deriving the final listing of facility objectives for a particular airport will involve marrying those objectives that reflect the airport's level with those objectives which reflect its operational benefits. This process is described in the following sections.

State-Managed Airport Facility Objectives

In Working Paper 1, each airport within the state-managed system was appraised both as an individual facility and as a contributor to the goals of the State Aviation Policy. The paper concluded with the entire state-managed system being stratified into four levels based on the degree to which the airports contributed to meeting of the state's aviation goals. Those airports that added the greatest value to the state were ranked in the higher levels, and those that added the least were included in the lower levels. The benefit of this stratification is that it suggests how the system is currently operating and which of the state-managed airports present the greatest value to the state. A clear understanding of this is important in that, from a practical standpoint, when determining where investments in development may be best applied, WSDOT Aviation may look to this stratification as a means of allocating funding.

As part of the effort of Working Paper 2, facility objectives have been identified for each of the four levels of the state-managed airport system stratification. The purpose of establishing these objectives is to set specific facility and operational goals for the long-term development of the airports within each particular level. The objectives themselves are a mix of safety and operational goals that have been established for each level through application of FAA advisory circulars, and through coordination with both WSDOT Aviation and the on-going LATS effort.

It is important to understand that the facility objectives are not requirements. Each airport has its own unique circumstances that will dictate what type of facilities should be recommended at an individual airport. However, from a system perspective, these objectives allow a broad-brush evaluation of the current system to be made as well as general system recommendations to be prepared. They encompass the primary facility components of any airport, including performance measures for the runway, taxiways, landing criteria (or approach categories), navigational aids (NAVAIDS), and appropriate goals for meeting specific airport design criteria. Also included is a general airport maintenance and development goal that represents high-level guidance for how the airports within a particular level should be viewed by WSDOT Aviation with respect to long-term objectives. Each of the facility objectives are discussed briefly below.

- **Airport Reference Code (ARC)** - The ARC is a two-part FAA coding system used to relate its airport design criteria to the operational and physical characteristics of the designated design aircraft. Selection of a specific ARC determines which of the design standards per FAA AC 150/5300-13 are applicable to a given airport. An ARC of "A-1" roughly translates to that of a small, single-engine general aviation aircraft.
- **Aircraft Size** – Another system for classifying aircraft for the purpose of identifying airport design standards is through their maximum takeoff weight (MTOW). "Small aircraft," as defined by the FAA, are those with a MTOW of 12,500 pounds or less.
- **Runway Classification** – Used for the application of FAR Part 77 standards, a runway can be classified based on its use and approaches. A classification of "utility" represents a runway that is constructed for use by propeller driven aircraft with a MTOW of 12,500 pounds or less.
- **Runway Length** – The length of a runway is a critical factor in determining the types of aircraft that can operate at a given airport. Small airports that only accommodate small general aviation aircraft usually require a minimum runway length between 2,000 and 3,500 feet, depending of weather and airport elevation.
- **Runway Width** – The width of a runway is typically set by FAA design standards. However, at airports with only one runway, a wider than standard runway is oftentimes utilized to account for crosswind operations.
- **Runway Surface** – Runways can be constructed of a variety of surface materials, including turf, gravel, sand, concrete and asphalt. Smaller, low-activity airports will often have non-paved surfaces to reduce maintenance costs.
- **Taxiway** – Taxiways are very important to ensuring the efficiency and safety of airfield operations at airports. However, at low-activity airports, this need is much less pronounced.

- **Other Facilities/Services** – Other support could include aircraft parking, aircraft hangars, and other airport-related facilities, while services could include hours of operation, fueling, etc.
- **Approach Categories** - The type of instrument approach at an airport affects the overall utility of an airport and can make it possible to land at the airport during inclement weather. The basic level of approach to an airport is a "visual" approach.
- **Visual Aids / Navigational Aids (NAVAIDS)** – To improve a pilot's ability to visually or electronically acquire the runway environment, various lighting, mechanical, and/or electronic devices can be installed at an airport. The most fundamental aid at an airport is typically a windsock.
- **Airport Design** – The FAA establishes airport design standards for all airports that are included in the National Plan of Integrated Airport Systems (NPIAS) and/or receive federal funding for development projects. These standards generally coincide with international design standards as well and typically serve as the benchmark for all airports in the United States. Of those standards, located in FAA AC 150/5300-13, some could be considered to more critical than others, and therefore should receive a higher degree of priority in meeting them.
- **General Maintenance / Development Recommendation** – These recommendations are strictly a function of the WSDOT Aviation State-Managed Airport Study.

The facility objectives for each of the four levels of the state-managed airport system are included in Tables 1 through 4. Additional clarification notes have been added where appropriate.

Table 1
STATE-MANAGED AIRPORT FACILITY OBJECTIVES
Level: No System Contribution (Score = 0)

Performance Measure	Performance Objective
ARC	No Objective
Aircraft Size	No Objective
Runway Classification	No Objective
Runway Length	No Objective
Runway Width	No Objective
Runway Surface	No Objective
Taxiway	No Objective
Other Facilities / Services	No Objective
Approaches Categories	No Objective
Visual Aids / NAVAIDS	No Objective
Airport Design	No Objective
General Maintenance / Development Recommendation	No Objective; Facility has potential to be closed

Level 0, which is the system stratification level that includes airports that that have been determined to make no contribution to the State Aviation Policy goals and therefore affords no real benefit to the state, has no objectives established. This is due to the fact that it would be reasonable for WSDOT Aviation to consider closure of any airport at this level, and as such, objectives are not appropriate.

Table 2
STATE-MANAGED AIRPORT FACILITY OBJECTIVES
Level: Lower System Contribution (Score = 1)

Performance Measure	Performance Objective
ARC	A-I
Aircraft Size	Small (under 12,500 lbs)
Runway Classification	Utility
Runway Length	No Objective
Runway Width	No Objective
Runway Surface	Turf/Gravel/Sand
Taxiway	Turnarounds on each end[1]
Other Facilities / Services	– Transient aircraft parking area – Open seasonally
Approaches Categories	Visual (Daytime only)
Visual Aids / NAVAIDS	– Windsock – Runway edge reflectors[1] – Weather Reporting
Airport Design	To the greatest extent practicable, the airport should meet the approach surface requirements of FAR Part 77
General Maintenance / Development Recommendation	Facility should be maintained to its present condition

[1] LATS performance objective for Recreation or Remote Airports

Level 1 typically represents those airports that provide some, albeit limited, contribution to the State Aviation Policy goals. While these facilities tend to be very rudimentary in nature and have minimal levels of usage, they also represent a very low level of investment by the state in order to maintain them. Therefore, the facility objectives for this level reflect that type of usage and system benefit. With regard to the LATS effort, airports in this level typically equate to the "remote or recreational airport" level.

It is important to note that likely the most significant objective for Level 1, as well as for Level 2 and Level 3, is in meeting the airspace clearance requirements of FAR Part 77. While maintaining clear airspace for arriving and departing aircraft is fundamental and critical to the safe operation of an airport, this particular standard can oftentimes result in significant expense and local impact. It should be recognized that there are a wide variety of airspace criteria affected by FAA beyond just Part 77 that could result in lesser impacts. In fact, the LATS effort has elected to utilize threshold siting surfaces (per FAA AC 150/5300-13, ch. 10) as its standard for airspace clearance. For the purposes of this working paper, Part 77 will remain as the facility objective since it is the standard most often utilized within current zoning ordinances and leasing

agreements. However, it would be reasonable for WSDOT Aviation to examine alternatives to Part 77 that would result in fewer impacts when working to meet the airspace clearance objective.

Table 3
STATE-MANAGED AIRPORT FACILITY OBJECTIVES
Level: Moderate System Contribution (Score = 2)

Performance Measure	Performance Objective
ARC	A-I
Aircraft Size	Small (under 12,500 lbs)
Runway Classification	Utility
Runway Length	2,400' recommended[1]
Runway Width	100' recommended[2]
Runway Surface	Turf/Gravel/Sand
Taxiway	Turnarounds on each end[3]
Other Facilities / Services	– Transient aircraft parking area – Open seasonally
Approaches Categories	Visual (Daytime only)
Visual Aids / NAVAIDS	– Windsock – Runway edge reflectors[3] – Weather Reporting
Airport Design	– To the greatest extent practicable, the airport should meet the approach surface requirements of FAR Part 77 – To the greatest extent practicable, the airport should maintain appropriate Runway Safety Areas as described in FAA AC 150/5300-13[3]
General Maintenance / Development Recommendation	Facility should be maintained and developed to better fulfill its primary state function and purpose

[1] LATS runway length objective for Local Service classification

[2] Runway width objective for non-paved runways lacking crosswind runway

[3] LATS performance objective for Recreation or Remote Airports

Level 2 typically represents those airports that provide moderate contributions to the State Aviation Policy goals in the form of helping to fulfill multiple goals through their typical usage patterns. For example, a given airport may be beneficial to the system by providing access to remote locations, providing emergency access, and supporting firefighting activities. As such, the facility objectives reflect these airports' greater degree of use and/or importance of purpose. With regard to the LATS effort, airports in this level typically equate to the "remote or recreational airport" level.

Table 4
STATE-MANAGED AIRPORT FACILITY OBJECTIVES
Level: High System Contribution (Score = 3)

Performance Measure	Performance Objective
ARC	A-I
Aircraft Size	Small (under 12,500 lbs)
Runway Classification	Utility
Runway Length	2,400' recommended[1]
Runway Width	60' recommended[2]
Runway Surface	Asphalt
Taxiway	Turnarounds on each end[3]
Other Facilities / Services	– Transient aircraft parking area – Open all year
Approaches Categories	Visual (day/night)
Visual Aids / NAVAIDS	– Windsock – Runway edge lighting[3] – Rotating Beacon – Visual glide slope indicators[3] – Weather Reporting
Airport Design	– To the greatest extent practicable, the airport should meet the approach surface requirements of FAR Part 77 – To the greatest extent practicable, the airport should maintain appropriate Runway Safety Areas as described in FAA AC 150/5300-13[3]
General Maintenance / Development Recommendation	– Facility should be maintained and developed to better fulfill its primary state function and purpose – Facility also has potential to be developed to fulfill additional aviation system functions

[1] LATS runway length objective for Local Service classification

[2] Runway width objective for non-paved runways lacking crosswind runway

[3] LATS performance objective for Recreation or Remote Airports

Level 3 represents those airports that provide the highest level of contributions to the State Aviation Policy goals, and roughly equates to the "local service airport" level with regard to the LATS effort. Airports at this level not only provide benefits to the state through their public service functions, but they also have the capability to fulfill some commercial aviation functions, such as through meeting the demands of general aviation operations. Commercial functions at an airport at this level could reasonably include general aviation fixed base operator (FBO) services, including aircraft storage, fueling, maintenance, aircraft rental, charter, and flight training. Commercial air

service could not be accommodated at this type of an airport. The facility objectives for this level reflect this higher level of utility and rely heavily on the recommendations established by LATS for local service airports.

State-Managed Airport Activity Performance Objectives

As shown in Working Paper 1, the state-managed airports contribute to the fulfillment of the State Aviation Policy goals by providing benefits to the state that might not otherwise be afforded if not for these state-managed airports. Within that working paper, the benefits or value to the state were identified as being within the following five main areas:

- Support of forest fire fighting activity
- Transportation access to remote communities
- Support of emergency medical operations
- Transportation access to recreational areas
- Flight safety enhancement

Similar to the facility objectives established above which were based on the system stratification, performance objectives were also identified that were based on the type of activity that a given airport accommodated. This was done since the activities identified above may have requirements that are unique to them. For example, an airport that only provides access to recreational areas will likely have some different requirements than an airport that accommodates firefighting activities.

Based on conversations with WSDOT Aviation personnel, performance objectives for each of the five types of activities that benefit the state were identified. These objectives are included in Tables 5 through 9, and additional clarifications have been added where appropriate. It should be noted that there are several performance objectives that are consistent for all activities. These include approach/departure airspace that is clear of obstructions, aircraft parking areas that are safely clear of the runway environment, and some sort of local weather reporting capability given the diverse and rapidly changing weather conditions frequently experienced in mountainous regions.

Table 5
AIRPORT ACTIVITY PERFORMANCE OBJECTIVES
Activity: Support Forest Firefighting Operations

Support Forest Firefighting Operations
Performance Objectives - Clear approaches (aircraft/helicopter) - Aircraft parking area(s) - Weather reporting - Pad (approximately 30' x 30') for command unit trailer with utility hook-ups (water, power, telephone) - Area(s) for firefighter camping / staging / auto parking - Complete grass coverage of all areas to minimize dust (turbine-engine intakes/downwash) – may require irrigation system

Firefighting activities experienced at the state-managed airports can include the following:

- Command and control operations,
- Helitack operations (helicopter borne firefighters),
- Smokejumpers (firefighters delivered by parachute), and
- Aerial firefighting or "water bombing" (helicopter and airplane water tankers).

Based on these types of activities and on recent experiences at the state-managed airports, the performance objectives identified above would provide appropriate areas, facilities, and resources for those engaged in this critical emergency function. It should be noted that accommodating forest firefighting operations is considered to be an overriding public interest for the state. As such, providing specific facilities (i.e. command trailer pad) on the airports for short-term lease to the Department of Natural Resources and/or the USDA Forest Service to support those activities would be consistent with that interest.

Table 6
AIRPORT ACTIVITY PERFORMANCE OBJECTIVES
Activity: Provide Transportation Access to Remote Communities

Provide Transportation Access to Remote Communities
Performance Objectives - Clear approaches (aircraft/helicopter) - Aircraft parking area(s) - Weather reporting - Good landside accessibility from road to airport (paved or graded gravel road) - Auto parking

Performance objectives for airports providing access to remote communities are focused on improving the safety and efficiency of the transfer of people and cargo from the airborne transportation network to the ground transportation network, and vice versa.

Table 7
AIRPORT ACTIVITY PERFORMANCE OBJECTIVES
Activity: Provide Access for Emergency Medical Operations

Provide Access for Emergency Medical Operations
Performance Objectives - Clear approaches (aircraft/helicopter) - Aircraft parking area(s) - Weather reporting - Paved / marked / lighted helipad - Floodlighting for helipad area - Snow removal for helipad - Telephone - Excellent landside accessibility from road to airport (paved road) - Auto parking - Appropriate emergency airport signage on surrounding roadways

Emergency medical operations at any airport are focused on speed, efficiency and consistency of access. As discussed in the previous working paper, the speed with which these types of activities are conducted can have a dramatic impact on the survival rate of a patient. As such, the interface between ground transportation network and the air network must be not only effective and efficient, it must be of a high quality to ensure the factor of speed. Paved access roads/parking and appropriate

signage are important components of this interface. Additionally, these operations can occur at any time. Therefore infrastructure should be established that will support night, as well as winter operations. Note that most, if not all, emergency medical operations are conducted by helicopters, which do not require an entire airport to be clear of snow to operate there, just the helipad and supporting facilities.

Table 8
AIRPORT ACTIVITY PERFORMANCE OBJECTIVES
Activity: Provide Access to Recreational Areas

Provide Access to Recreational Areas
Performance Objectives - Clear approaches (aircraft/helicopter) - Aircraft parking area(s) - Weather reporting - Telephone (for landside transportation) - Water - Restrooms / showers - Good landside accessibility from road to airport (paved or graded gravel road) - Auto parking - Campsites / picnic tables / firepits

Similar to the performance objectives for airports providing other forms of access, those for airports providing access to recreational areas are focused on providing addition recreational opportunities at the airport. These opportunities could include support facilities for day trips (i.e. picnic tables) and for overnight trips (i.e. campsites, firepits, and bathroom/shower facilities.

Table 9
AIRPORT ACTIVITY PERFORMANCE OBJECTIVES
Activity: Flight Safety Enhancement

Enhance the Overall Level of Safety for the State Aviation System
Performance Objectives - Clear approaches (aircraft/helicopter) - Aircraft parking area(s) - Weather reporting - Telephone - Shelter

Those airports providing flight safety enhancement generally provide facilities for those pilots that have landed at the airport due to some sort of emergency condition that could include mechanical problems, navigational issues, fuel issues, and weather concerns, among others. In any case, the pilot would likely require communication capabilities (i.e. land-line telephone, since cellular phone service can be intermittent in mountainous regions) and some form of shelter for extreme weather conditions.

IV. CONCLUSION

Working Paper 2 encompasses the second submittal to WSDOT Aviation for the completion of the State-Managed Airport Study. While the previous working paper provided evidence that the vast majority of the airports managed by WSDOT Aviation do bring a level of value and benefit to Washington State, Working Paper 2 provides high-level definition and guidance on how that system of airports should be managed and developed.

Specifically, state-level policies were suggested specific for the operation of the state-managed airport system that included the following:

- Policy 1 - The primary function of the WSDOT Aviation-Managed Airport System is to fulfill the stated purposes of the State Aviation Policy.
- Policy 2 - WSDOT Aviation *will operate and maintain* the airports within the state-managed system only to the level to sustain the fundamental benefits for the State of Washington as prescribed by the State Aviation Policy.
- Policy 3 - WSDOT Aviation will consider the *acquisition or disposal* of airports only within the context of fulfilling the stated purposes of the State Aviation Policy.
- Policy 4 - WSDOT Aviation will not endorse the establishment of independent operators conducting aeronautical activities on land adjacent to, but not a part of, any properties associated with the state-managed airport system.

Beyond the policy level initiatives, specific performance objectives were established from both a system stratification perspective, and from an airport activity perspective. The goal of this approach was to establish performance objectives that looked at the overall system, as well as the particular needs of each airport so as to enhance their ability to accommodate activities that bring benefit to the state.

In terms of the overall study effort, as noted above, Working Paper 1 established the value of the existing system, while Working Paper 2 has presented policies and performance objectives to maintain and enhance the value of that system. The final submission of this study will be Working Paper 3, which will present specific recommendations for the development of individual airports, as well as best management practices for the operation of those airports.